

## GUIDE FOR WRITING OUTLINE SPECIFICATIONS

Based on definitions from the AIA Handbook and the CSI Manual of Practice, an outline specification is an itemized list, using brief, concise statements, of significant materials, systems, and equipment and their criteria and levels of quality. Also, any criteria having a special cost impact would be indicated.

Categorize the outline by the appropriate CSI Division, listing all Divisions, even those that are not being used, noting those that will not be used. Also, include Section numbers and titles following the list of possible section numbers and titles found in the CSI Masterformat Master List.

Attached is an example of an outline specification made up of sections from previous projects. Please note that the materials, methods, and systems included here may not be appropriate for every project. Note also, that some section names and numbers may be out of date. The intention of this example is to provide only a general style and content guide for the preparation of an outline specification. Tailor each outline specification to the specific project.

**OUTLINE SPECIFICATION**

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DIVISION 1: GENERAL REQUIREMENTS

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01110 SUMMARY OF THE WORK

The project consists of the general construction of [a visitor center and museum], with new road, parking lot, plaza, utilities, and associated site grading and landscaping.

DIVISION 2: SITE WORK

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02050 REMOVAL OF PAVEMENTS AND STRUCTURES

General removing of culverts, gates, signs, wood and chainlink fencing material.  
General removal and recycling of bituminous pavement. Demolish and remove from the site designated miscellaneous buildings, and miscellaneous debris.

02110 CLEARING, GRUBBING, SELECTIVE THINNING AND TREE REMOVAL

Clear and grub stumps and undergrowth. Dispose of debris.

02116 SELECTIVE THINNING AND TREE REMOVAL

Thin undergrowth and remove trees as directed. Dispose of debris.

02210 SITE AND ROADWAY EXCAVATION AND GRADING

Strip, stockpile and place topsoil. Excavate roadway, embankment, backfill, compact backfill, and place imported borrow. Compact subgrade and do finish grading.

02225 STRUCTURE EXCAVATION AND BACKFILL

General Site Preparation - Proofroll entire building site after clearing, grubbing, and stripping. Excavate for foundation and concrete slab-on-grade. After placement of foundation, backfill and compact excavated area utilizing original soil. Density testing will be the responsibility of the Contractor.

02270 EROSION CONTROL

Furnish and implement an erosion control plan.

02271 ENGINEERING FABRIC

Furnish and place engineering fabric, landscape fabric, and filter fabric on the subgrade of roads, parking lots, riprap, underdrains, downspouts.

02272 RIPRAP

Furnish and place stone riprap for embankment protection and ends of storm drains.

02273 EROSION CONTROL MATTING

Install erosion control matting.

02320 UTILITY TRENCHING AND BACKFILL

Provide trenching and backfilling for utilities.

02510 CONCRETE WALKS AND CURBS

Concrete walks and curbs in selected color.

02551 BITUMINOUS PRIME COAT AND TACK COAT

Treat aggregate base course and existing asphalt surfaces with bituminous material.  
Include blotting material if required.

02552 BITUMINOUS SEAL COAT

Apply bituminous material as a seal coat to a prepared surface.

02553 BITUMINOUS CONCRETE PAVEMENT

Construct one or more bituminous surface courses, placed on a prepared base including all pavement transitions and curbs where required.

02665 WATER SYSTEM

Provide a water system including all accessories and piping from the well to the storage tank and then throughout the project. Include fire hydrants, road crossings, and connections to fire protection sprinkler systems.

02711 UNDERDRAINS

Install underdrains, pipe, granular filter material, and synthetic fabric.

02721 CONCRETE DROP INLETS AND CATCH BASINS

Construct concrete drop inlets and catch basins with metal grates.

02722 CULVERTS AND STORM DRAINS

Install new pipe culverts, storm drains, and end sections.

02727 CONCRETE HEADWALLS

Construct concrete head and wing walls for culvert pipe structures to design lines, grades and dimensions.

02730 SEWAGE SYSTEM

Provide a gravity fed sewage treatment system including accessories, road crossings, and leaching fields.

02810 IRRIGATION SYSTEM

Install drip irrigation system in landscaped areas.

02834 WOOD GATES

Install wood gates as shown with keeper posts, locks and chains.

02836 UTILITY SCREEN

Cedar posts, screen, and gate.

02849 EXTERIOR SIGNS

Install regulatory road signs and park information signs.

02872 TRASH RECEPTACLE

Steel receptacle with top to prevent rain from entering trash bin, including plastic trash bin.

02876 BENCHES

Wood or steel benches placed in plaza.

02922 STABILIZED TURF

Stabilize turf areas with plastic rings adhered to mesh-Trailrings or approved equal.  
Use aggregate and fertilized topsoil, and seed to establish turf shoulders.

02931 SEEDING, FERTILIZING, AND MULCHING

Seed, fertilize, and mulch landscaped areas, roadway shoulders, and steep slopes.

02932 SODDING

Sod lawn areas.

02950 SHRUB AND TREE PLANTING

Install shrubs and trees in planting pits with prepared soil amendments.

02951 STEEL EDGING

Provide steel edging along landscaped areas.

DIVISION 3: CONCRETE

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03301 CONCRETE

Use 4,000 psi concrete with a maximum slump of 4". Contractor responsible for providing the mix design. Use Grade 60 reinforcing steel (epoxy coated when required). Contractor responsible for all concrete testing (strength, slump, and air content). Actual type and size of footing and foundation system used will be based on soil borings. Slab on grade floors.

DIVISION 4: MASONRY

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04200 CMU MASONRY

ASTM C90, normal weight, Type I, concrete masonry units. Mortar ASTM C270.  
Grout ASTM C476, 2000 psi. Reinforcing ASTM A615, Grade 60.

04201 MASONRY

Brick and stone masonry over metal stud framing and solid masonry where shown.  
Mortar ASTM C270.

DIVISION 5: METALS

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05120 STRUCTURAL STEEL - GENERAL

Structural steel frame (beams and columns) and miscellaneous members to conform to ASTM A992, 50 ksi. Bolts to conform to either ASTM A307 or A325. Painting to consist of 1-coat of rust-inhibitive primer.

05500 MISCELLANEOUS METALS

Handrails, gratings, anchor bolts and other special metal accessories and fabrications.  
Non-shrink setting grout.

DIVISION 6: WOOD AND PLASTICS

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06100 ROUGH CARPENTRY

Wood furring, sheathing, and blocking for built in casework and nailers for the top of all roof framing members; minimum 5/8-inch thick structural grade plywood for roof sheathing.

06200 FINISH CARPENTRY

Wood veneer finish casework, solid wood and/or plastic laminate counters, in AWI premium quality for the Information Desk, Sales Area, Library, and Staff Office. Solid wood standing and running trim.

06300 WOOD TREATMENT

Pressure treat lumber with water borne preservatives in accordance with industry standards.

DIVISION 7: THERMAL AND MOISTURE PROTECTION

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07190 VAPOR RETARDER

4 mil thick polyethylene under slab on grade and on walls where indicated.

07210 BUILDING INSULATION

2-1/2-inch thick (R-11+) extruded polystyrene board perimeter insulation at foundations. R-19 batt insulation for exterior walls. R-38 batt insulation in roofs.

07310 SHINGLES

Mineral fiber cement roof shingles.

07410 METAL ROOFING

2-inch high standing seam, Kynar 500 finished Galvalume metal roofing.

07600 FLASHING, GUTTERS, AND SHEET METAL

Galvanized sheet metal, painted where exposed.

07700 ROOF ACCESSORIES

Provide continuous metal gravity ridge and fascia ventilators.

07800 SKYLIGHTS

Aluminum frame and laminated glass skylight.

07900 SEALANTS

Use silicone or polyurethane sealants in color to match adjacent surfaces.

DIVISION 8: DOORS AND WINDOWS

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08100 WOOD DOORS

Provide paneled oak and glass entrance doors with oak frames. On interior, use oak wood veneer solid core wood doors with oak wood frames.

08200 METAL DOORS AND FRAMES

Hollow metal doors and frames at toilets, mechanical rooms, and emergency exits.

08520 WINDOWS

Aluminum clad wood custom windows.

08710 HARDWARE AND SPECIALTIES

Latch sets, hinges, stops, plates, pulls etc. in oil rubbed and oxidized satin bronze (BHMA 613 or US10B) finish. Use levers on all latch and lock sets, except at service or utility areas use spherical knobs. Master key all locks to the system in use at the park.

08800 GLAZING

Provide 1-inch sealed insulated glass, made up of 1/4-inch thick clear float glass with e2 coating on interior panes of South and East walls. Provide heat mirror glass units on North walls. Use tempered glass where required.

08900 METAL FRAMED TROMBE WALL

Glaze Trombe wall with anodized aluminum frame. 5/32-inch thick, fully tempered, uncoated, low-iron content, stipple pattern glass, Solite, as manufactured by AFG Industries.

DIVISION 9: FINISHES

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09100 METAL STUD FRAMING SYSTEM

Metal stud wall and ceiling framing.

09250 GYPSUM WALL BOARD

Use 5/8" regular gypsum board on designated interior walls and on all ceilings. 5/8" water resistant gypsum board in wet areas. Use cementitious glass mesh mortar units on walls designated to have ceramic tile applied. Use Type X gypsum board on partitions requiring fire rating.

09300 CERAMIC TILE

Ceramic mosaic tile walls and quarry tile floors in Toilets (Public and Staff).

09680 CARPET TILE

Continuous filament, soil repellent, recycled material carpet tile with a pile weight of not less than 36 oz. per square yard in Offices, Exhibits, Multipurpose Room, and Library.

09650 RESILIENT FLOORING

Provide resilient flooring in utility, storage, and mechanical spaces.

09900 PAINTING

Epoxy coatings in toilet rooms, alkyd enamel semi-gloss paints on scheduled walls and ceilings. Use clear stain on interior and exterior wood trim. Ceilings painted white. Meet state volatile organic compound requirements.

DIVISION 10: SPECIALTIES

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10160 TOILET PARTITIONS

Floor mounted and overhead braced high-density solid polyethylene partitions with self-closing doors with latches and coat hooks.

10200 LOUVERS AND VENTS

Kynar 500 finished metal louvers and vents as required for ventilation and exhaust as shown and not included with ductwork.

10350 FLAGPOLE

Aluminum flagpole located near front entrance walk.

10440 SIGNS

Signs for selected rooms.

10800 TOILET ACCESSORIES

Stainless steel (satin finish) recessed accessories including soap dispensers, towel dispensers, waste receptacles, toilet paper holders, grab bars, feminine napkin dispensers and disposals, and framed glass mirrors.

10522 FIRE EXTINGUISHERS, CABINETS AND ACCESSORIES

Manual extinguishing equipment located in accordance with NFPA 10.

DIVISION 11: EQUIPMENT

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11460 KITCHEN EQUIPMENT

Unit kitchen in Staff Office.

DIVISION 12: FURNISHINGS

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12315 LIBRARY EQUIPMENT

Free standing shelving units, study carrels, armchairs, and task lights.

12500 WINDOW COVERINGS

Vertical blinds in Library and Multipurpose Room.

12620 LOBBY SEATING

Wood benches with cushion seats in Lobby and Exhibit Hall.

12640 OFFICE FURNITURE

Built-in system furniture in offices.

12700 MULTIPURPOSE ROOM SEATING AND TABLES

Stackable/ganging chairs and folding tables in Multipurpose Room, color and fabric as selected.

DIVISION 13: SPECIAL CONSTRUCTION

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13100 LIGHTNING PROTECTION

Provide lightning protection in accordance with Lightning Protection Institute Standard LPI 175, with concealed copper conductors including protection of trees adjacent to Visitor Center and Museum.

13120 PRE-ENGINEERED STRUCTURE

Provide a pre-engineered single span rigid frame metal building including primary and secondary structural framing, metal roofing and exterior wall covering, doors, windows, insulation, and miscellaneous metal building components and accessories necessary for a complete metal building.

13800 BUILDING AUTOMATION AND CONTROL

Building automation and control system for clerestory windows, HVAC, and lighting.

13850 DETECTION AND ALARM

Supervised, non-coded, shunt-trip, non-interfering fire and security alarm system of conduit, wire, control panels, cabinets, pull stations, automatic fire and smoke detection devices, etc., for an operating fire alarm and smoke detection system.

13900 FIRE SUPPRESSION SYSTEM

Design, furnish, install, and test automatic wet pipe fire sprinkler and standpipe systems for the entire building, including attics, crawl spaces, and concealed spaces in accordance with NFPA 13.

DIVISION 14: CONVEYING SYSTEMS

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Not Used for This Project

DIVISION 15: MECHANICAL

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15050 BASIC MATERIALS AND METHODS

Materials and methods common to all sections including pipe and equipment identification, seismic restraint systems, pipe hangers and anchors, equipment drives, etc.

.15250 MECHANICAL INSULATION

Pipe, equipment and ductwork insulation

15160 PUMPS

Pumping equipment for hydronic space heating and domestic hot water heating. Sump pumps for elevator pits .

15240 VIBRATION ISOLATION AND SOUND CONTROL

Vibration isolating hangers for all equipment having reciprocating or rotating parts and for any other equipment, piping, or vessels that produce or transmit objectionable vibrations, pulsations, or noises.

15260 PIPE AND EQUIPMENT INSULATION

Factory molded fiberglass insulation for mechanical piping and fiberglass blanket insulation for equipment other than piping.

15290 DUCT INSULATION

External fiberglass blanket type thermal insulation with fiber-scrim-kraft facing and internal duct acoustical insulation for all supply and outside air ducts, plenums, and return air ducts passing through ambient air or unconditioned spaces.

15400 PLUMBING

Service weight cast iron waste, vent, and sanitary sewer systems; Type L copper domestic cold and hot water supply systems; and all related equipment accessories and appurtenances.



#### 15440 PLUMBING FIXTURES

Low-flow type plumbing fixtures and related trim, fittings, and valves meeting ADA requirements. Use plumbing fixtures and fittings in accordance with NPS guidelines as follows:

Water Closets -	1.6 gallons per flush (max)
Urinals -	Waterless
Showerheads -	2.5 gpm (max) at 80 psi
Kitchen Faucet -	2.2 gpm (max) at 60 psi
Lavatory Faucet (Public) -	0.5 gpm (max) at 60 psi
Lavatory Faucet (Private) -	2.2 gpm (max) at 60 psi

Wall-hung water closets in the public restrooms. Electronic sensor operated flush valves and faucets in toilets. Freeze-proof drinking fountains located on the exterior of the building with operating mechanisms accessible from the interior of the building. Electric tank-type water heaters located near points-of-use.

#### 15480 NATURAL GAS PIPING AND APPURTENANCES

Natural gas piping, fittings, and accessories for a system operating at pressure no greater than 15 psig. Underground gas piping PE 2406 polyethylene gas pipe; aboveground gas piping Schedule 40 black steel with malleable iron fittings. Use “anodeless” service risers for transition from underground piping to aboveground piping.

#### 15510 HYDRONIC HEATING SYSTEM

Complete and operable hydronic heating system using Type L copper piping.

#### 15515 AIR SEPARATOR AND EXPANSION TANK

Air separator and expansion tank for the hydronic heating system, complete with all fittings and appurtenances.

#### 15555 GAS-FIRED BOILERS

Modular, high efficiency, closed-combustion condensing type gas-fired hot water boilers, flue gas vents, and vent terminations. AL29-4C stainless steel flue gas vents with sidewall vent terminations.

#### 15670 AIR CONDITIONING SYSTEMS

Provide packaged air conditioning equipment with indoor condensing units with centrifugal fans, suitable for ducted connections to exterior wall louvers. Provide coatings and fasteners suitable for providing longevity in a coastal environment. Provide ventilation air during all occupied hours meeting or exceeding ASHRAE 62-89.

#### 15860 EXHAUST FANS

Provide exhaust fans for all restroom areas.

#### 15890 DUCTWORK

Ductwork and appurtenances in connection with HVAC. Spiral-wound round ductwork in exposed ceiling areas; rectangular ductwork in concealed locations such as the mechanical equipment room, chases, or above finished ceilings.

#### 15910 DUCT ACCESSORIES

Duct accessories such as automatic control dampers, manual control dampers, balancing dampers, fire dampers, turning vanes, flexible duct connections, etc. Provide heavy-duty two-position dampers immediately behind all air inlet and outlet louvers to close off the louvers openings in a hurricane event.

15911 REGISTERS, GRILLES, AND DIFFUSERS

Registers, grilles, and diffusers in heating, ventilating, and air conditioning systems.

15955 CONTROLS

Provide complete electrical/electronic systems of automatic temperature control for the heating, ventilating, and air-conditioning systems in conjunction with the building automation system.

15992 TESTING BUILDING PIPING SYSTEMS

Test building piping systems to ensure they are complete, operable, and ready for use.

15993 TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS

Provide testing apparatus and instruments, and perform all procedures to test, adjust, and balance the various air, fluid, mechanical, and electrical systems associated with the heating, ventilating, and air conditioning systems to optimum performance.

## DIVISION 16: ELECTRICAL

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16050 BASIC MATERIALS AND METHODS

A. Conduit And Fittings: Rigid steel or intermediate metal conduits. Use compression type conduit fittings, but in trade sizes 3-inch and larger set screw type connectors will be permitted. Where set screw type connectors are installed, individual ground wires must be installed along with the circuit conductors.

B. Wiring: All copper 600-volt, type THW insulation except that all wiring running underground or in areas susceptible to moisture shall be rubber insulated type RHW. Wire sizes smaller than #6 AWG solid, sizes #6 and larger stranded.

Wiring Devices: Receptacles 125-volt, 20-ampere specification grade comparable to Hubbell Cat. #5262, or approved equal, single phase, 3-wire, grounding type except as noted otherwise. Snap switches 125-volt, 15-ampere specification grade, silent type. Metal device plates.

16300 ELECTRICAL UTILITIES

[Provide electrical system description and describe work that the local utility company will do.]

16400 SERVICE

Run the new 120/208 volt, 3-phase 4-wire 60 hertz service to the high side of the transformer located on the east side of the Visitor Center and Museum. Locate electrical equipment serving site utilities in the electrical equipment room. Locate transformer on concrete pad behind a safety barrier.

16419 SERVICE AND DISTRIBUTION

Convertible type service entrance equipment and distribution panel board with circuit breaker disconnect switch in main panel and molded case circuit breakers in the branch panels.

16470 PANELBOARDS

Bolt-on type panelboards with ratings exceeding the connected loads and available fault current in accordance with applicable sections of the National Electric Code. Protect branch circuits serving exterior receptacles or circuits located in toilets, damp, or wet locations with ground fault circuit interrupters.

16510 INTERIOR LIGHTING

In compliance with IES, dimmable luminaires on light track in exhibit areas, indirect luminaires in Lobby, cove lighting in Multipurpose Room, task lighting in office areas, flush fluorescent in mechanical rooms and toilets, and both task and flush fluorescent in the Library. Use energy efficient compact fluorescent and T-5 fluorescent lamps where possible.

16530 EXTERIOR LIGHTING

Metal-halide building security and parking lot lighting with high cutoff luminaires to minimize light pollution and glare.

16740 TELEPHONE SYSTEM

Existing overhead telephone lines will be relocated underground by the telephone company, using the same path and trench as the under-ground power. Provide an empty conduit system for the installation of telephone wiring and equipment by the telephone company. System to consist of all cabinets, pull and junction boxes, bullets, sleeves, fittings, etc. to form a complete telephone system. Extend telephone conduit out to project limit and cap for extension by telephone company.

End of Outline Specifications